TEL-T CENTER 1600/2

IN THE UNITED STATESON ATTENDA In the Application of:

1AN 0 6 2003

RECEIVED

Lewis A. Chodosh et al. Application No.: 10/032,256

Group Art Unit: TBA

ND TRADEMARK OFFICE

Filed: 12/21/2001

Examiner: TBA

Title: Hormonally Up-Regulated, Neu-Tumor-Associate Kinase

Assistant Commissioner for Patents

Washington, DC 20231

INFORMATION DISCLOSURE UNDER 37 CFR 1.97(b)

The attention of the Patent and Trademark Office is hereby directed to the documents listed on the attached Form PTO-1449. One copy of each of these documents is Sir: attached, with the exception of the following:

- 1. Cooper, G. M. "Oncogenes." Boston: Jones and Bartlett Publishers (1987).
- 2. Harlow, E., and Lane, D. "Using Antibodies: A Laboratory Manual," Cold
- Spring Harbor Laboratory Press, Cold Spring Harbor, NY (1999). 3. Hogan, B., Beddington, R., Constantini, F. and Lacy, E. "Manipulating the Mouse Embryo: A Laboratory Manual." Cold Spring Harbor, NY: Cold Spring Harbor

The above-identified books are used to support background material in the Laboratory Press (1994). specification of the instant application. Applicants will provide the books if the Examiner believes that a review of the entire publication, or any part thereof, is relevant to the examination

No fee or certification is required in connection with this Information Disclosure, of the present application. since it is being submitted prior to the last of 1) issuance of a first Office Action on the merits, or 2) expiration of the three-month period following filing of the above-identified application.

It is respectfully requested that the information be considered by the Examiner and that a copy of the attached Form PTO-1449 be returned indicating that such information has been considered.

In the event any fees are required in connection with this paper, please charge Deposit Account No. 50-0979. A copy of this document is enclosed.

Applicants' undersigned attorney may be reached by telephone at (215) 575-7034. All correspondence should be directed to the below-listed address.

Respectfully submitted,

Evelyn H. McConathy

Registration No. 35,279

Date: December 30, 2002

DILWORTH PAXSON LLP 3200 Mellon Bank Center 1735 Market Street Philadelphia, PA 19103-7595 Tel. (215) 575-7000 Fax (215) 575-7200

Sheet 1 of 8 Form PTO-1449 DOCKET NO. 22253-70421 S. Department of Charles 2003 Date Filed: Dealer 1600/2900 APPLICANT: Lewis A. Chodosh, et al. FILING DATE: 12/21/2001 OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, etc.) Masheim, H. C., Terstappen, L. W., and Logtenberg, T. "Regulated expression of the Eph-related receptor tyrosine kinase Hek11 in early human B lymphopoiesis." Blood 90: 3613-3622 (1997). Adams, R. H., Wilkinson, G. A., Weiss, C., Diella, F., Gale, N. W., Deutsch, U., Risau, W., and Klein, R. "Roles of ephrinB ligands and EphB receptors in cardiovascular development: De-marcation of arterial/venous domains, vascular morphogenesis, and sprouting angiogenesis." Genes Dev. 13: 295-306 (1999). Adnane, J., Gaudray, P., Dionne, C. A., Crumley, G., Jaye, M., Schlessinger, J., Jeanteur, P., Birnbaum, D., and Theillet, C. "BEK and FLG, two receptors to members of the FGF family, are amplified in subsets of human breast cancers." Oncogene 6: 659-663 (1991). Alderson, A., Sabelli, P., Dickinson, J., Cole, D., Richardson, M., Kreis, M., Shewry, P., and Halford, N. 04 "Complementation of snf1, a mutation affecting global regulation of carbon metabolism in yeast, by a plant protein kinase cDNA." Proc. Natl. Acad. Sci. USA 88: 8602-8605 (1991). Andres, A.-C., Zuercher, G., Djonov, V., Flueck, M., and Ziemiecki, A. "Protein tyrosine kinase expression during the estrous cycle and carcinogenesis of the mammary gland." Int. J. Cancer 63: 288-296 (1995). Becker, W., Heukelbach, J., Kentrup, H., and Joost, H. G. "Molecular cloning and characterization of a novel mammalian protein kinase harboring a homology domain that defines a sub-family of serine/threonine kinases." Eur. J. Biochem. 235: 736-743 (1996). Bergemann, A. D., Zhang, L., Chiang, M. K., Brambilla, R., Klein, R., and Flanagan, J. G. "Ephrin-B3, a ligand for the receptor EphB3, expressed at the midline of the developing neural tube." Oncogene 16: 471-480 (1998). Bessone, S., Vidal, F., Le Bouc, Y., Epelbaum, J., Bluet-Pajot, M. T. and Darmon, M. "EMK protein kinase-null 08 mice: dwarfism and hypofertility associated with alterations in the somatotrope and prolactin pathways." Dev. Biol. Betzl, G., Brem, G. and Weidle, U. H. "Epigenetic modification of transgenes under the control of the mouse mammary tumor virus LTR: tissue-dependent influence on transcription of the transgenes." Biol. Chem. 377: 711-719 (1996). Bishop, D. F., Calhoun, D. H., Bernstein, H. S., Hantzopoulos, P., Quinn, M., and Desnick, R. J. "Human alphagalactosidase A: Nucleotide sequence of a cDNA clone encoding the mature enzyme." Proc. Natl. Acad. Sci. USA 83: 4859-4863 (1986) Bocchinfuso, W. P. and Korach, K. S. "Mammary gland development and tumorigenesis in estrogen receptor knockout mice." J. Mamm. Gland Biol. Neoplasia 2: 323-334 (1997). Bohm, H., Brinkmann, V., Drab, M., Henske, A., and Kurzchalia, T. V. "Mammalian homologues of C. elegans PAR-1 are asymmetrically localized in epithelial cells and may influence their polarity." Curr. Biol. 7: 603-606 Brinkley, P. M., Class, K., Bolen, J. B., and Penhallow, R. C. "Structure and developmental regulation of the 13 murine ctk gene." Gene 163: 179-184 (1995). Buhler, T. A., Dale, T. C., Kieback, C., Humphreys, R. C. and Rosen, J. M. "Localization and quantification of 14 Wnt-2 gene expression in mouse mammary development." Dev. Biol. 155: 87-96 (1993). Cance, W. G., Craven, R. J., Weiner, T. M., and Liu, E. T. "Novel protein kinases expressed in human breast 15 cancer." Int. J. Cancer 54: 571-577 (1993). Cardiff, R. D., and Muller, W. J. "Transgenic mouse models of mammary tumorigenesis." Cancer Surv. 16: 97-113 16 Cardiff, R. D., Sinn, E., Muller, W., and Leder, P. "Transgenic oncogene mice. Tumor phenotype predicts 17 genotype." Am. J. Pathol. 139: 495-501 (1991). Carling, D., Aguan, K., Woods, A., Verhoeven, A. J., Beri, R. K., Brennan, C. H., Sidebottom, C., Davison, M. D., 18 and Scott, J. "Mammalian AMP-activated protein kinase is homologous to yeast and plant protein kinases involved in the regulation of carbon metabolism." J. Biol. Chem. 269: 11442-11448 (1994). Carlson, M., Osmond, B., and Botstein, D. "Mutants of yeast defective in sucrose utilization." Genetics 98: 25-40 19 (1981).Celenza, J. L., Eng, F. J., and Carlson, M. "Molecular analysis f the SNF4 gene of Saccharomyces cerevisiae: Evidence for physical association of the SNF4 protein with the SNF1 protein kinase." Mol. Cell. Biol. 9: 5045-5054 (1989).**Examiner Signature:** Date Considered:

RECLIVED

Sheet 2 of 8 IAN 0 8 2003 Form BSFQ-1449 U.S. Department of Commenter 1600/2900 DOCKET NO. 22253-70421 APPLICANT: Lewis A. Chodosh Date Filed: December 31, 2002 FILING DATE: 12/21/2001 OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, etc.) Cho, R. J., Campbell, M. J., Winzeler, E. A., Steinmetz, L., Conway, A., Wodicka, L., Wolfsberg, T. G., Gabrielian, A. E., Landsman, D., Lockhart, D. J., and Davis, R. W. "A genome-wide transcriptional analysis of the mitotic cell cycle." Mol. Cell 2: 65-73 (1998). 22 Chodosh, L. A., D'Cruz, C. M., Gardner, H. P., Ha, S. I., Marquis, S. T., Rajan, J. V., Stairs, D. B., Wang, J. Y., and Wang, M. "Mammary gland development, reproductive history, and breast cancer risk." Cancer Res. 59: 1765-1771S (1999). Chodosh, L. A., Gardner, H. P., Rajan, J. V., Stairs, D. B., Marquis, S. T., and Leder, P. A. "Protein kinase 23 expression during murine mammary development." Dev. Biol. 219: 259-276, (2000). Ciriacy, M. "Isolation and characterization of yeast mutants defective in intermediary carbon metabolism and in 24 carbon catabolite repression." Mol. Gen. Genet. 154: 213-220 (1977). Copeland, N. G., and Jenkins, N. A. "Development and applications of a molecular genetic linkage map of the 25 mouse genome." Trends Genet. 7: 113-118 (1991). Delabar, J. M., Theophile, D., Rahmani, Z., Chettouh, Z., Blouin, J. L., Prieur, M., Noel, B., and Sinet, P. M. 26 "Molecular mapping of twenty-four features of Down syndrome on chromosome 21." Eur. J. Hum. Genet. 1: 114-124 (1993). Di Fiore, P., Pierce, J. H., Fleming, T. P., Hazan, R., Ullrich, A., King, C. R., Schlessinger, J. and Aaronson, S. A. 27 "Overexpression of the human EGF receptor confers an EGF-dependent transformed phenotype to NIH 3T3 cells." Cell 51: 1063-1070 (1990). 28 Drewes, G., Ebneth, A., Preuss, U., Mandelkow, E. M., and Man-delkow, E. "MARK, a novel family of protein kinases that phosphorylate microtubule-associated proteins and trigger micro-tubule disruption." Cell 89: 297-308 (1997).Dymecki, S. M., Niederhuber, J. E., and Desiderio, S. V. "Specific expression of a tyrosine kinase gene, blk, in B 29 lymphoid cells." Science 247: 332-336 (1990). 30 Elson, A., and Leder, P. "Protein-tyrosine phosphatase epsilon. An isoform specifically expressed in mouse mammary tumors initiated by v-Ha-ras or neu." J. Biol. Chem. 270: 26116-26122 (1995). 31 Fan, C. M., Kuwana, E., Bulfone, A., Fletcher, C. F., Copeland, N. G., Jenkins, N. A., Crews, S., Martinez, S., Puelles, L., Rubenstein, L. R., and Tessier-Lavigne, M. "Expression patterns of two murine homologs of Drosophila single-minded suggest possible roles in embryonic patterning and in the pathogenesis of Down syndrome." Mol. Cell. Neurosci. 7: 519 (1996). 32 Ferrari, S., Manfredini, R., Tagliafico, E., Grande, A., Barbieri, D., Balestri, R., Pizzanelli, M., Zucchini, P., Citro, G., Zupi, G., et al. "Antiapoptotic effect of c-fes protooncogene during granu-locytic differentiation." Leukemia 8: S91-94 (1994). 33 Fields, S., and Song, O. "A novel genetic system to detect protein-protein interactions." Nature 340: 245-246 Fox, G. M., Holst, P. L., Chute, H. T., Lindberg, R. A., Janssen, A. M., Basu, R., and Welcher, A. A. "cDNA cloning and tissue distribution of five human EPH-like receptor protein-tyrosine kinases." Oncogene 10: 897-905 (1995).35 Ganju, P., Walls, E., Brennan, J., and Reith, A. D. "Cloning and developmental expression of Nsk2. a novel receptor tyrosine kinase implicated in skeletal myogenesis." Oncogene 11: 281-290 (1995). Gavin, B. J. and McMahon, A. P. "Differential regulation of the Wnt gene family during pregnancy and lactation 36 suggests a role in postnatal development of the mammary gland." Mol. Cell. Biol. 12: 2418-2423 (1992). 37 Guo, S. and Kemphues, K. "par-1, a gene required for establishing polarity in C. elegans embryos, encodes a putative ser/thr kinase that is asymmetrically distributed." Cell 81: 611-620 (1995). Guy, C. T., Muthuswamy, S. K., Cardiff, R. D., Soriano, P., and Muller, W. J. "Activation of the c-Src tyrosine 38 kinase is required for the induction of fnammary tumors in transgenic mice." Genes Dev. 8: 23-32 (1994). Hanks, S. K., Quinn, A. M., and Hunter, T. "The protein kinase family: Conserved features and deduced 39 phylogeny of the catalytic domains." Science 241: 42-52 (1988). **Examiner Signature: Date Considered:**

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant(s).

PTO-1449.doc

Ci.		RECEIVED		RECEIVED	
Sheet 3		40			
Form PT	0-14	ΙΔΙΙ Ο Ο 2003	DOCKET NO. 22253-70421	AN 0 6 2003 APPLN. NO. 10/032,256	
	500	U.S. Department Commerce 1600/2900 Date Filed: December 31, 2002	DOCKET NO. 22253-70427ECH APPLICANT: Lewis A. Chodosh,	CENTER 1600/2900	
DEC 3 1 200	2		FILING DATE: 12/21/2001	GROUP 1645	
ا د	-67	OTHER DOCUMENT(S) (Including	Author, Title, Date, Pertinent Pages, etc.)		
DEC 3 1 ZU	part O	Hanks, S., and Quinn, A. "Protein kinase catalytic domain sequence database: Identification of conserved features of primary structure and classification of family members." <i>Methods Enzymol.</i> 200: 38–79 (1991).			
		Hardie, D. G. "Roles of the AMP-activated/SNF1 Soc. Symp. 64: 13–27 (1999).			
Hardie, D. G., Carling, D. and Halford, N. "Roles of the Snf1/Rkin1/AMP-activated protein kinase family in response to environmental and nutritional stress." Semin. Cell Biol. 5: 409-416 (1994).					
Hardie, D. G., Corton, J., Ching, Y. P., Davies, S. P., and Hawley, S. "Regulation of lipid metabolis activated protein kinase." <i>Biochem. Soc. Trans.</i> 25: 1229–1231 (1997).					
Hardie, D. G., Salt, I. P., Hawley, S. A., and Davies, S. P. "AMP-activated protein kinase: An ultr for monitoring cellular energy charge." <i>Biochem. J.</i> 338: 717–722 (1999).				nase: An ultrasensitive system	
	45	Henderson, B. E., Ross, R. K. and Bernstein, L. "Estrogens as a cause of human cancer: the Richard and Hinda Rosenthal Foundation Award Lecture." <i>Cancer Res</i> 48: 246-253 (1988).			
Herve, D., Rogard, M., and Levi-Strauss, M. "Molecular analysis of the multiple Golf a rat brain." <i>Brain Res. Mol. Brain Res.</i> 32: 125–134 (1995).			alpha subunit mRNAs in the		
	Heyer, B. S., Warsowe, J., Solter, D., Knowles, B. B., and Ackerman, S. L. "New member of the Snf1/AMPK kinase family, Melk, is expressed in the mouse egg and preimplantation embryo." <i>Mol. Reprod. Dev.</i> 47: 148–156 (1997).				
	Huang, A. L., Ostrowski, M. C., Berard, D. and Hager, G. L. "Glucocorticoid regulation of the Ha-MuSV p21 gene conferred by sequences from mouse mammary tumor virus." Cell 27: 245-255 (1981).				
	Humphreys, R. C., Lydon, J. P., O'Malley, B. W. and Rosen, J. M. "Use of PRKO mice to study the role of progesterone in mammary gland development." J. Mamm. Gland Biol. Neoplasia 2: 343-354 (1997).				
 John Miller Biol. Neoptasta 2: 343-334 (1997). Itoh, N., Mima, T., and Mikawa, T. "Loss of fibroblast growth factor receptors is necessary for terminal differentiation of embryonic limb muscle." Development 122: 291-300 (1996). Jenkins, N. A., Copeland, N. G., Taylor, B. A., and Lee, B. K. "Organization, distribution, and stability of endogenous ecotropic murine leukemia virus DNA sequences in chromosomes of Musmusculus." J. Viro (1982). 					
					Jin, L., Fuchs, A., Schnitt, S. J., Yao, Y., Joseph, A., Lamszus, K., Park, M., Goldberg, I. D., and Ro "Expression of scatter factor and c-met receptor in benign and malignant breast tissue." Cancer 79: 7
	 Kelsey, J. L., Gammon, M. D. and John, E. M. "Reproductive factors and breast cancer." Epidemiol. Rev. 15: 36 (1993). Klijn, J., Berns, E., and Foekens, J. "Prognostic factors and response to therapy in breast cancer." In "Breast Cancer" (I. Fentiman and J. Taylor-Papadimitriou, Eds.) 18: 165-198. Cold Spring Harbor Laboratory Press, Co. Spring Harbor, NY. (1993). 				
	55	Kluppel, M., Donoviel, D. B., Brunkow, M. E., M patterns of the Tec tyrosine kinase gene suggest a melanogenesis." Cell Growth Differ. 8: 1249–125	role in megakaryocytopoiesis, blood	nic and adult expression vessel development, and	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant(s).

PTO-1449.doc

Acad. Sci. USA 91: 4997-5001 (1994).

8125-8132 (1987).

887-903 (1991).

Korenberg, J. R., Chen, X. N., Schipper, R., Sun, Z., Gonsky, R., Gerwehr, S., Carpenter, N., Daumer, C., Dignan, P., Disteche, C., et al. "Down syndrome phenotypes: The consequences of chromosomal imbalance." *Proc. Natl.*

Kozak, M. "An analysis of 59-noncoding sequences from 699 vertebrate messenger RNAs." Nucleic Acids Res. 15:

Kozak, M. "An analysis of vertebrate mRNA sequences: Intimations of translational control." J. Cell Biol. 115:

Korobko, I. V., Kabishev, A. A., and Kiselev, S. L. "[Identification of the new protein kinase specifically transcribed in mouse tumors with high metastatic potential]." *Doklady Akad. Nauk* 354: 554-556 (1997).

57

58

59

Sheet 4 of 8 Form PTO-1449 JAN 0 3 2003 PPLN. NO. 10/032,256 DOCKET NO. 22253-70421 N.S. Department of Commerce ECH CENTER 1600/2900 Date Filed: December 31, 2002 APPLICANT: Lewis A. Tholos Date Filed: December 31 DEC 3 1 2002 FILING DATE: 12/21/2001 OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, etc.) Mrull, C. E., Lansford, R., Gale, N. W., Collazo, A., Marcelle, C., Yancopoulos, G. D., Fraser, S. E., and Bronner-* MADEMAR Fraser, M. "Interactions of Eph-related receptors and ligands confer rostrocaudal pattern to trunk neural crest migration." Curr. Biol. 7: 571-580 (1997). Kurioka, K., Nakagawa, K., Denda, K., Miyazawa, K., and Kitamura, N. "Molecular cloning and characterization of a novel protein serine/threonine kinase highly expressed in mouse embryo." Biochim. Biophys. Acta 1443: 275-284 62 Lai, C., Gore, M., and Lemke, G. "Structure, expression, and activity of Tyro 3, a neural adhesion-related receptor tyrosine kinase." Oncogene 9: 2567-2578 (1994). Lambe, M., Hsieh, C.-C., Tricholpoulos, D., Ekbom, A., Pavia, M., and Adami, H.-O. "Transient increase in the risk of breast cancer after giving birth." N. Engl. J. Med. 331: 5-9 (1994). 64 Leder, A., Pattengale, P. K., Kuo, A., Stewart, T. A., and Leder, P. Consequences of widespread deregulation of the c-myc gene in transgenic mice: Multiple neoplasms and normal development." Cell 45: 485-495 (1986). Le Guen, L., Thomas, M., Bianchi, M., Halford, N. G., and Kreis, M. "Structure and expression of a gene from 65 Arabidopsis thaliana encoding a protein related to SNF1 protein kinase." Gene 120: 249-254 (1992). Lee, K. S., Yuan, Y.-L. O., Kuriyama, R., and Erikson, R. L. "Plk is an M-phase-specific protein kinase and interacts with a kinesin-like protein, CHO1/MKLP-1." Mol. Cell. Biol. 15: 7143-7151 (1995). Lehtola, L., Partanen, J., Sistonen, L., Korhonen, J., Warri, A., Harkonen, P., Clarke, R., and Alitalo, K. "Analysis of tyrosine kinase mRNAs including four FGF receptor mRNAs expressed in MCF-7 breast cancer cells." Int. J. Cancer 50: 598-603 (1992). Levin, D. E., and Bishop, J. M. "A putative protein kinase gene (kin11) is important for growth polarity in 68 Schizosaccharomyces pombe." Proc. Natl. Acad. Sci. USA 87: 8272-8276 (1990). <u>69</u> Li, J., Simpson, L., Takahashi, M., Miliaresis, C., Myers, M. P., Tonks, N., and Parsons, R.. "The PTEN/MMAC1 tumor suppressor induces cell death that is rescued by the AKT/protein kinase B oncogene." Cancer Res. 58: 5667-5672 (1998). 70 Li, J., Yen, C., Liaw, D., Podsypanina, K., Bose, S., Wang, S. I., Puc, J., Miliaresis, C., Rodgers, L., McCombie, R., Bigner, S. H., Giovanella, B. C., Ittmann, M., Tycko, B., Hibshoosh, H., Wigler, M. H., and Parsons, R. "PTEN, a putative protein tyrosine phosphatase gene mutated in human brain, breast, and prostate cancer [see comments]." Science 275: 1943-1947 (1997). Liang, T. J., Reid, A. E., Xavier, R., Cardiff, R. D., and Wang, T. C. "Transgenic expression of tpr-met oncogene leads to development of mammary hyperplasia and tumors." J. Clin. Invest. 97: 2872-2877 (1996). Liaw, D., Marsh, D. J., Li, J., Dahia, P. L., Wang, S. I., Zheng, Z., Bose, S., Call, K. M., Tsou, H. C., Peacocke, M., Eng, C., and Parsons, R. "Germline mutations of the PTEN gene in Cowden disease, an inherited breast and thyroid cancer syndrome." Nat. Genet. 16: 64-67 (1997). Ligos, J. M., Gerwin, N., Fernandez, P., Gutierrez-Ramos, J. C., and Bernad, A. "Cloning, expression analysis, and functional characterization of PKL12, a member of a new subfamily of Ser/Thr kinases." Biochem. Biophys. Res. Commun. 249: 380-384 (1998). 74 MacMahon, B., Cole, P., Lin, T. M., Lowe, C. R., Mirra, A. P., Ravnihar, B., Salber, E. J., Valaoras, V. G., and Yuasa, S. "Age at first birth and breast cancer risk." Bull. WHO 43: 209-221 (1970). MacMahon, B., Trichopoulos, D., Brown, J., Andersen, A. P., Aoki, K., Cole, P., DeWaard, F., Kaureniemi, T., Morgan, R. W., Purde, M., Ravnihar, B., Stormby, N., Westlund, K., and Woo, N.-C. "Age at menarche, probability of ovulation and breast cancer risk." Int. J. Cancer 29: 13-16 (1982). Maggiora, P., Marchio, S., Stella, M. C., Giai, M., Belfiore, A., DeBortoli, M., Di Renzo, M. F., Costantino, A., Sismondi, P., and Comoglio, P. M. "Overexpression of the RON gene in human breast carcinoma." Oncogene 16: 2927–2933 (1998). Manfredini, R., Balestri, R., Tagliafico, E., Trevisan, F., Pizzanelli, M., Grande, A., Barbieri, D., Zucchini, P., 77 Citro, G., Franceschi, C., and Ferrari, S. "Antisense inhibition of c-fes proto-oncogene blocks PMA-induced macrophage differentiation in HL60 and in FDC-P1/MAC-11 cells." Blood 89: 135-145 (1997). Mano, H., Sato, K., Yazaki, Y., and Hirai, H. "Tec protein-tyrosine kinase directly associates with Lyn proteintyrosine kinase through its N-terminal unique domain." Oncogene 9: 3205-3211 (1994). Date Considered: **Examiner Signature:**

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant(s). PTO-1449.doc

		RECEIVED		PEOP			
	Sheet 5 of 8						
N .	PTO-14	49 0 9 2003					
OIF	DE\	JAN 0 3 2000	DOCKET NO. 22253-70421	APPLNANO (102032,256			
	2	JAN 0 3 2003 U.S. Department of Commerce FULLY CENTER 1600/290		TEO 2003			
	7	2\ IEUH CENTER 1600/29U	APPLICANT: Lewis A. Chodosh,	etach CENTER			
DEC 3 1	2002	Date Filed: December 31, 2002		WIER 1600/2000			
	ZUUZ	Щ O	FILING DATE: 12/21/2001	GROUP 1645			
	. 6	OTHER DOCUMENT(S) (Including	Author, Title, Date, Pertinent Pages	etc.)			
1	79	Mano, H., Yamashita, Y., Miyazato, A., Miura,	Y., and Ozawa, K. "Tec protein-tyro	sine kinase is an effector			
DADE	M PAGE	molecule of Lyn protein-tyrosine kinase." FASE	EB J. 10: 637–642 (1996).				
Marquis, S. T., Rajan, J. V., Wynshaw-Boris, A., Xu, J., Yin, GY., Abel, K. J., Weber, B. L., and Chodos							
1		"The developmental pattern of Brcal expression	n implies a role in differentiation of the	he breast and other tissues."			
Nat. Genet. 11: 17–26 (1995).							
	81 Mischak, H., Kolch, W., Goodnight, J., Davidson, W. F., Rapp, U., Rose-John, S., and Mushinski, J. F.						
1	ŀ	"Expression of protein kinase C genes in hemor	oietic cells is cell-type- and B cell-di	fferentiation stage specific "			
	82	Moore, F., Weekes, J., and Hardie, D. G. "Evide	ence that AMP triggers phosphorylati	on as well as direct allosteric			
		activation of rat liver AMP-activated protein kir	ase. A sensitive mechanism to protect	et the cell against ATP			
		depletion." Eur. J. Biochem. 199: 691-697 (199	91).	ot ale con agamet 1111			
	83	Morrison, B. W., and Leder, P. "neu and ras init		are genetic markers generally			
		absent in c-myc and int-2-initiated tumors." One	cogene 9: 3417–3426 (1994).	are genetic markers generally			
	84	Muller, W. J., Lee, F. S., Dickson, C., Peters, G.		nt-2 gene product acts as an			
		epithelial growth factor in transgenic mice." EM	(BO J. 9: 907–913 (1990).	at 2 gene product acts as an			
1	85	Muller, W. J., Sinn, E., Pattengale, P. K., Wallac	ce. R., and Leder P "Single-sten ind	uction of mammary			
		adenocarcinoma in transgenic mice bearing the	activated c-neu oncogene." Cell 54: 1	05_115 (1988)			
	86	Munn, R., Webster, M., Muller, W., and Cardiff	R "Histonathology of transgenic m	ouse mammary tumors (a			
		short atlas)." Semin. Cancer Biol. 6: 153-158 (1	995).	ouse mammary tumors (a			
	87	Muranaka, T., Banno, H., and Machida, Y. "Cha		se NPK5 a homolog of			
1		Saccharomyces cerevisiae SNF1 that constitutiv	ely activates expression of the alucos	se-repressible SLIC2 gene for			
Saccharomyces cerevisiae SNF1 that constitutively activates expression of the glassecreted invertase of S. cerevisiae." <i>Mol. Cell. Biol.</i> 14: 2958–2965 (1994)				ic-repressible BOCZ gene for			
	88	Myohanen, S., Kauppinen, L., Wahlfors, J., Alhe	onen, L., and Janne, I. "Human spern	nidine synthase gene:			
Myohanen, S., Kauppinen, L., Wahlfors, J., Alhonen, L., and Janne, J. "Human spermidine synthase gene: Structure and chromosomal localization." <i>DNA Cell Biol.</i> 10: 467–474 (1991).				nume symmuse gene.			
	Myohanen, S., Wahlfors, J., Alhonen, L., and Janne, J. "Nucleotide sequence of mouse spermidine synthase						
	1	cDNA." DNA Seq. 4: 343–346 (1994).					
	90	Newcomb, P., Storer, B., Longnecker, M., Mitte	ndorf, R., Greenberg, E., Clapp, R., F	Burke, K., Willett, W., and			
		MacMahon, B. "Lactation and a reduced risk of premeno-pausal breast cancer." N. Engl. J. Med. 330: 81-87					
		(1994).					
	91	Niemann, C., Brinkmann, V., Spitzer, E., Hartma	ann, G., Sachs, M., Naundorf, H., and	Birchmeier, W.			
		"Reconstitution of mammary gland development	in vitro: requirement of c-met and c-	erbB2 signaling for			
		branching and alveolar morphogenesis." J. Cell	Biol. 143: 533–545 (1998).				
	92	Parsa, I. "Loss of a Mr 78,000 marker in chemical	ally induced transplantable carcinoma	as and primary carcinoma of			
		human pancreas." Cancer Res. 48: 2265–2272 (1988).				
	93	Partanen, J., Armstrong, E., Makela, T. P., Korho	onen, J., Sandberg, M., Renkonen, R.	, Knuutila, S., Huebner, K.,			
		and Alitalo, K. "A novel endothelial cell surface	receptor tyrosine kinase with extrace	llular epidermal growth			
		factor homology domains." Mol. Cell. Biol. 12: 1698–1707 (1992).					
	94	Parthasarathy, L., Parthasarathy, R., and Vadnal, R. "Molecular characterization of coding and untranslated					
		regions of rat cortex lithium-sensitive myoinosite	ol monophosphatase cDNA." Gene 19	91: 81–87 (1997).			
	95	Peng, C. Y., Graves, P. R., Ogg, S., Thoma, R. S	., Byrnes, M. J., 3rd, Wu, Z., Stephen	son, M. T., and Piwnica-			
		Worms, H. "C-TAK1 protein kinase phosphorylates human Cdc25C on serine 216 and promotes 14-3-3 protein					
		binding." Cell Growth Differ. 9: 197–208 (1998).					
	96	Peng, C. Y., Graves, P. R., Thoma, R. S., Wu, Z.	, Shaw, A. S., and Piwnica-Worms, I	I. "Mitotic and G2			
		heckpoint control: Regulation of 14-3-3 protein binding by phosphorylation of Cdc25C on serine-216." Science 77: 1501–1505 (1997).					
	97	Pike, M. C., Spicer, D. V., Dahmoush, L. and Pre	ess, M. F. "Estrogens, progestogens,	normal breast cell			
		proliferation, and breast cancer risk." Epidemiol.	Rev. 15: 17-35 (1993).				
	98	Ponticos, M., Lu, Q. L., Morgan, J. E., Hardie, D	. G., Partridge, T. A., and Carling, D.	. (1998). Dual regulation of			
		the AMP-activated protein kinase provides a nov	el mechanism for the control of creat	ine kinase in skeletal muscle.			
		EMBO J. 17: 1688–1699 (1998).					
Evernin	or Sign	-4					

^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant(s).

PTO-1449.doc

Sheet 6 of 8 Form PTO-1449 JAN 0 8 2003 DOCKET NO. 22253-70421 U.S. Department of Commerce APPLICANT: Lewis A. Chodos Lege TECH CENTER 1600/2900 Date Filed: December 31, 2002 FILING DATE: 12/21/2001 OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, etc.) Quintrell, N., Lebo, R., Varmus, H., Bishop, J. M., Pettenati, M. J., LeBeau, M. M., Diaz, M. O., and Rowley, J. D. "Identification of a human gene (HCK) that encodes a protein-tyrosine kinase and is expressed in hemopoietic BADEN cells." Mol. Cell. Biol. 7: 2267-2275 (1987). Rahmani, Z., Blouin, J. L., Creau-Goldberg, N., Watkins, P. C., Mattei, J. F., Poissonnier, M., Prieur, M., Chettouh, Z., Nicole, A., Aurias, A., et al., "Critical role of the D21S55 region on chromosome 21 in the pathogenesis of Down syndrome." Proc. Natl. Acad. Sci. USA 86: 5958-5962 (1989). Rajan, J. V., Marquis, S. T., Gardner, H. P., and Chodosh, L. A. "Developmental expression of Brca2 colocalizes 101 with Brca1 and is associated with differentiation in multiple tissues." Dev. Biol. 184: 385-401 (1997). Rawlings, D. J., and Witte, O. N. "Bruton's tyrosine kinase is a key regulator in B-cell development." Immunol. 102 Rev. 138: 105-119 (1994). Robinson, G. W., McKnight, R. A., Smith, G. H., and Hennighausen, L. "Mammary epithelial cells undergo 103 secretory differentiation in cycling virgins but require pregnancy for the establishment of terminal differentiation." Development 121: 2079-2090 (1995). Ruiz, J., Conlon, F., and Robertson, E. "Identification of novel protein kinases expressed in the myocardium of the developing mouse heart." Mech. Dev. 48: 153-164 (1994). Russo, I. H., and Russo, J. "Developmental stage of the rat mammary gland as determinant of its susceptibility to 105 7,12-dimethylben(a)anthracene." J. Natl. Cancer Inst. 61: 1439-1449 (1978). Russo, J., and Russo, I. H. "Biological and molecular bases of mammary carcinogenesis." Lab. Invest. 57: 112-106 137 (1987). Sano, H., and Youssefian, S. "Light and nutritional regulation of transcripts encoding a wheat protein kinase 107 homolog is mediated by cytokinins." Proc. Natl. Acad. Sci. USA 91: 2582-2586. Santoro, M. M., Collesi, C., Grisendi, S., Gaudino, G., and Comoglio, P. M. "Constitutive activation of the RON 108 gene promotes invasive growth but not transformation." Mol. Cell. Biol. 16: 7072-7083 (1996). Sato, K., Mano, H., Ariyama, T., Inazawa, J., Yazaki, Y., and Hirai, H. "Molecular cloning and analysis of the 109 human Tec protein-tyrosine kinase." Leukemia 8: 1663-1672 (1994). Sato, T. N., Qin, Y., Kozak, C. A., and Audus, K. L. "Tie-1 and tie-2 define another class of putative receptor 110 tyrosine kinase genes expressed in early embryonic vascular system." Proc. Natl. Acad. Sci. USA 90: 9355-9358 (1993). [Published erratum appears in Proc. Natl. Acad. Sci. USA, 1993, 15, 12056] Sato, T. N., Tozawa, Y., Deutsch, U., Wolburg-Buchholz, K., Fujiwara, Y., Gendron-Maguire, M., Gridley, T., Wolburg, H., Risau, W., and Qin, Y. "Distinct roles of the receptor tyrosine kinases Tie-1 and Tie-2 in blood vessel formation." Nature 376: 70-74 (1995). Schnurch, H., and Risau, W. "Expression of tie-2, a member of a novel family of receptor tyrosine kinases, in the 112 endothelial cell lineage." Development 119: 957-968 (1993). Shulman, J. M., Benton, R. and St Johnston, D. "The Drosophila homolog of C. elegans PAR-1 organizes the 113 oocyte cytoskeleton and directs oskar mRNA localization to the posterior pole." Cell 101: 377-388 (2000). Siliciano, J. D., Morrow, T. A., and Desiderio, S. V. "itk, a T-cell-specific tyrosine kinase gene inducible by 114 interleukin 2." Proc. Natl. Acad. Sci. USA 89: 11194-11198 (1992). Sinn, E., Muller, W., Pattengale, P., Tepler, I., Wallace, R., and Leder, P. "Coexpression of MMTV/v-Ha-ras and 115 MMTV/c-myc genes in transgenic mice: Synergistic action of oncogenes in vivo." Cell 49: 465-475 (1987). Slamon, D. J., Clark, G. M., and Wong, S. G. "Human breast cancer: Correlation of relapse and survival with 116 amplification of the HER-2/neu oncogene." Science 235: 177-182 (1987). Slamon, D. J., Godolphin, W., Jones, L. A., Holt, J. A., Wong, S. G., Keith, D. E., Levin, W. J., Stuart, S. G., Udove, J., Ullrich, A., et al. "Studies of the HER-2/neu proto-oncogene in human breast and ovarian cancer." Science 244: 707-712 (1989). Stairs, D. B., Gardner, H. P., Ha, S. I., Copeland, N. G., Gilbert, D. J., Jenkins, N. A., and Chodosh, L. A. 118 "Cloning and characterization of Krct, a member of a novel subfamily of serine/threonine kinases." Hum. Mol. Genet. 7: 2157-2166 (1998). Stambolic, V., Suzuki, A., de la Pompa, J. L., Brothers, G. M., Mirtsos, C., Sasaki, T., Ruland, J., Penninger, J. M., 119 Siderovski, D. P., and Mak, T. W. "Negative regulation of PKB/Akt-dependent cell survival by the tumor suppressor PTEN." Cell 95: 29-39 (1998). **Examiner Signature:** Date Considered:



Sheet 7 of 8 JAN 0 3 2003 Form PTO-1449 DOCKET NO. 22253-70421 U.S. Departm The Gold Contracted 1600/2900 APPLICANT: Lewis A. Chodosh, et a Date Filed: December 31, 2002 FILING DATE: 12/21/2001 DEC 3 1 2002 OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, etc.) Steck, P. A., Pershouse, M. A., Jasser, S. A., Yung, W. K., Lin, H., Ligon, A. H., Langford, L. A., Baumgard, M. L., Hattier, T., Davis, T., Frye, C., Hu, R., Swedlund, B., Teng, D. H., and Tavtigian, S. V. "Identification of a candidate tumour suppressor gene, MMAC1, at chromosome 10q23.3 that is mutated in multiple advanced cancers." Nat. Genet. 15: 356-362 (1997). Sternlicht, M. D., Lochter, A., Sympson, C. J., Huey, B., Rougier, J., Gray, J. W., Pinkel, D., Bissell, M. J. and Werb, Z." The stromal proteinase MP3/ stromelysin-1 promotes mammary carcinogenesis." Cell 98: 137-146 (1999).Stitt, T. N., Conn, G., Gore, M., Lai, C., Bruno, J., Radziejewski, C., Mattsson, K., Fisher, J., Gies, D. R., Jones, P. 122 F., et al. "The anticoagulation factor protein S and its relative, Gas6, are ligands for the Tyro 3/Axl family of receptor tyrosine kinases." Cell 80: 661-670 (1995). Tamagnone, L., and Comoglio, P. M. "Control of invasive growth by hepatocyte growth factor (HGF) and related 123 scatter factors." Cytokine Growth Factor Rev. 8: 129-142 (1997). ten Dijke, P., Franzen, P., Yamashita, H., Ichijo, H., Heldin, C., and Miyazono, K. "Serine-threonine kinase 124 receptors." Progr. Growth Factor Res. 5: 55-72 (1994). Teng, C. "Mouse lactoferrin gene: a marker for estrogen and epidermal growth factor." Environ. Health Perspect. 125 103: 17-20 (1995). 126 Thompson-Jaeger, S., Francois, J., Gaughran, J. P., and Tatchell, K. "Deletion of SNF1 affects the nutrient response of yeast and resembles mutations which activate the adenylate cyclase path-way." Genetics 129: 697-706 (1991).Tokishita, S., Shiga, Y., Kimura, S., Ohta, T., Kobayashi, M., Hanazato, T., and Yamagata, H. "Cloning and analysis of a cDNA encoding a two-domain hemoglobin chain from the water flea Daphnia magna." Gene 189: Topper, Y. J. and Freeman, C. S. "Multiple hormone interactions in the developmental biology of the mammary 128 gland." Physiol. Rev. 60: 1049-1106 (1980). Tsarfaty, I., Resau, J. H., Rulong, S., Keydar, I., Faletto, D. L., and Vande Woude, G. F. "The met proto-oncogene 129 receptor and lumen formation." Science 257: 1258-1261 (1992). Tsukada, S., Saffran, D. C., Rawlings, D. J., Parolini, O., Allen, R. C., Klisak, I., Sparkes, R. S., Kubagawa, H., 130 Mohandas, T., Quan, S., et al. "Deficient expression of a B cell cytoplasmic tyrosine kinase in human X-linked agammaglobulinemia." Cell 72: 279-290 (1993). Ugolini, F., Adelaide, J., Charafe-Jauffret, E., Nguyen, C., Jacquemier, J., Jordan, B., Birnbaum, D., and Pebusque, 131 M. J. "Differential expression assay of chromosome arm 8p genes identifies Frizzled-related (FRP1/FRZB) and fibroblast growth factor receptor 1 (FGFR1) as candidate breast cancer genes." Oncogene 18: 1903-1910 (1999). Umemori, H., Wanaka, A., Kato, H., Takeuchi, M., Tohyama, M., and Yamamoto, T. "Specific expressions of Fyn and Lyn, lymphocyte antigen receptor-associated tyrosine kinases, in the central nervous system." Brain Res. Mol. Brain Res. 16: 303-310 (1992). Valenzuela, D. M., Rojas, E., Griffiths, J. A., Compton, D. L., Gisser, M., Ip, N. Y., Goldfarb, M., and 133 Yancopoulos, G. D. "Identification of full-length and truncated forms of Ehk-3, a novel member of the Eph receptor tyrosine kinase family." Oncogene 10: 1573-1580 (1995a). Valenzuela, D. M., Stitt, T. N., DiStefano, P. S., Rojas, E., Mattsson, K., Compton, D. L., Nunez, L., Park, J. S., 134 Stark, J. L., Gies, D. R., et al. "Receptor tyrosine kinase specific for the skeletal muscle lineage: Expression in embryonic muscle, at the neuromuscular junction, and after injury." Neuron 15: 573-584 (1995b). 135 Wang, M. H., Dlugosz, A. A., Sun, Y., Suda, T., Skeel, A., and Leonard, E. J. "Macrophage-stimulating protein induces proliferation and migration of murine keratinocytes." Exp. Cell Res. 226: 39-46 (1996). Webster, N. J., Resnik, J. L., Reichart, D. B., Strauss, B., Haas, M., and Seely, B. L. "Repression of the insulin 136 receptor promoter by the tumor suppressor gene product p53: A possible mechanism for receptor overexpression in breast cancer." Cancer Res. 56: 2781-2788 (1996). Wilks, A. F. "Cloning members of protein-tyrosine kinase family using polymerase chain reaction." Methods Enzymol. 200: 533-546 (1991). Wilks, A. F. "Two putative protein-tyrosine kinases identified by application of the polymerase chain reaction." Proc. Natl. Acad. Sci. USA 86: 1603-1607 (1989). **Examiner Signature:** Date Considered:

Sheet 8 of 8		JA	N 0 6 2002			
Form PTO-14	TECH CENTER 1900/2900	TECH OF				
OIPE	II S Department of Commence	DOCKET NO. 22253-7042177 C	WHA NO. 10/032,256			
()	Date Filed: December 31, 2002	ADDI ICANT: Lawis A Chadash	111000/2900			
DEC 3 1 2002	Date Filed: December 31, 2002	APPLICANT: Lewis A. Chodosh, et al.				
		FILING DATE: 12/21/2001	GROUP 1645			
126	OTHER DOCUMENT(S) (Including	Author, Title, Date, Pertinent Pages	·			
RADEMA 140	Wilks, A. F., Kurban, K. K., Hovens, C. M. and	Ralph S I "The application - Cal	polymerase chain reaction to			
140	cloning members of the protein tyrosine kinase wilson, W., Hawley, S., and Hardie, D. "Glucos activated by phosphorylation under despressions."					
	phospholylation under defenressing	conditions, and this correlates with	g yeast: SNF1 protein kinase is			
141						
141		n, M. D., Scott, J., Beri, R. K., and Ca	arling, D. "Characterization of			
	AMP-activated protein kinase beta and gamma s Biol. Chem. 271: 10282–10290 (1996).	subunits. Assembly of the hetero-trin	neric complex in vitro". J.			
142	Wyllie, A. H., Arends, M. J., Morris, R. G., Wall	ker, S. W., and Evan, G. "The aponto	ogic andonuslassa. 1'			
142	1 - 28 - 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1					
143	Yang, X., Hubbard, E. J., and Carlson, M. "A pre Science 257: 680–682 (1992).	otein kinase substrate identified by the	ne two-hybrid system."			
144	Yang, X., Jiang, R., and Carlson, M. "A family of interaction with the yeast SNE1 protein kinese					
	1 mineraction with the Acast Plat. I Dittle in Kinach Co	mmlev <i>" EMB() </i> 12.5070 500//1	00.4			
145	1 1, 1. L., Bolen, J. B., and Inle, J. N. "Hematono	ietic cells express two forms of law 1	inase differing by 21 amino			
146						
140	Yokokura, H., Picciotto, M. R., Nairn, A. C., and dependent protein kinase I contains closely associated	Hidaka, H. "The regulatory region of	of calcium/calmodulin-			
	dependent protein kinase I contains closely assoc <i>Chem.</i> 270: 23851–23859 (1995).					
147	Yokokura, H., Terada, O., Naito, Y., and Hidaka, H. "Isolation and comparison of the DNA"					
148	1 Carriodaini-dependent protein kinase i isoto	orms " Riochim Rionbug 1 -4 - 1990	0 10 (100=)			
140	Yu, G., Smithgall, T. E., and Glazer, R. I. "K562 ability to undergo myeloid differentiation." J. Bio	leukemia cells transforted with the 1	uman c-fes gene acquire the			
149	Legici, S. F., Marin, J. D., Lewis, D. R. and Perl	mutter D M "Novel	na kinasa gana (h.1.)			
150	Ziegler, S. F., Marth, J. D., Lewis, D. B., and Perlmutter, R. M. "Novel protein-tyrosine kinase gene (hck) preferentially expressed in cells of hematopoietic origin." <i>Mol. Cell. Biol.</i> 7: 2276–2285 (1987).					
130	200 2 ministributi, T., Nautilialli, L. Kasenperger H. and Housennen D. (Counting C. 1.					
	Saccharomyces cerevisiae: Genes involved in the derepression process." Mol. Gen. Genet. 154: 95–103 (1977).					
	v					
,						
Examiner Signa	fure					